IN THE CLAIMS

This listing of claims replaces all prior versions, and listings, in this application.

1. (previously presented) A biosensor for glucose, which comprises a glucose binding protein (GBP) and at least one reporter group attached at position 183 of said GBP, wherein binding of glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group.

2. (previously presented) The biosensor according to claim 1, wherein said GBP is a W183C mutant.

Claims 3-6 (canceled)

7. (previously presented) The biosensor according to claim 1, wherein said reporter group is covalently attached at position 183 of said GBP.

8. (previously presented) The biosensor according to claim 1, wherein said reporter group is noncovalently attached at position 183 of said GBP.

9. (original) The biosensor according to claim 1, wherein said reporter group is a redox cofactor.

10. (original) The biosensor according to claim 1, wherein said reporter group is a fluorophore.

11. (previously presented) The biosensor according to claim 1, wherein said biosensor's standard intensity change (ΔI_{std}) upon binding of glucose is greater than 0.25.

12. (original) The biosensor according to claim 11, wherein said ΔI_{std} is greater than 0.9.

13. (previously presented) The biosensor according to claim 1, wherein said biosensor's maximum value of standard ratiometric change (ΔR_{max}) upon binding of glucose is greater than 1.25.

14. (original) The biosensor according to claim 13, wherein said ΔR_{max} is greater than 2.5.

15. (currently amended) A biosensor for glucose, which comprises a glucose binding protein (GBP) and at least one reporter group attached at one or more amino acid positions of said GBP selected from the group consisting of 10, 93 and 183, wherein binding of glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group.

16. (withdrawn) A method of detecting presence or absence of glucose in a sample, which comprises: contacting a biosensor according to claim 1 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said biosensor is contacted with said sample with the signal(s) transduced by said reporter group when said biosensor is contacted with at least one control sample containing a known quantity of glucose; and determining the presence or absence of glucose in said sample from said comparison.

17. (withdrawn) A method of quantitating amount or concentration of glucose in a sample, which comprises: contacting a biosensor according to claim 1 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said biosensor is contacted with said sample against signals transduced by a series of control samples containing known quantities of glucose; and calculating the quantity of glucose in said sample from said comparison.

18. (withdrawn) A method of assaying for glucose in a sample, which comprises:

(a) contacting a biosensor according to claim 1 with said sample, wherein binding of said glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group;

(b) measuring a ratiometric change (ΔR) for the signal transduced by said reporter group; and

(c) at least detecting or quantitating glucose present in said sample.

19. (withdrawn) The method of claim 18, wherein said sample is comprised of a physiological fluid.

20. (withdrawn) The method of claim 19, wherein said physiological fluid is selected from the group consisting of blood, interstitial fluid, lavage, perspiration, plasma, saliva, serum, and urine.

Claims 21-23 (canceled)

24. (withdrawn) A method of detecting presence or absence of glucose in a sample, which comprises: contacting a biosensor according to claim 15 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said biosensor is contacted with said sample with the signal(s) transduced by said reporter group when said biosensor is contacted with at least one control sample containing a known quantity of glucose; and determining the presence or absence of glucose in said sample from said comparison.

25. (withdrawn) A method of quantitating amount or concentration of glucose in a sample, which comprises: contacting a biosensor according to claim 15 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said

biosensor is contacted with said sample against signals transduced by a series of control samples containing known quantities of glucose; and calculating the quantity of glucose in said sample from said comparison.

26. (withdrawn) A method of assaying for glucose in a sample, which comprises:

(a) contacting a biosensor according to claim 15 with said sample, wherein binding of said glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group;

(b) measuring a ratiometric change (ΔR) for the signal transduced by said reporter group; and

(c) at least detecting or quantitating glucose present in said sample.

27. (withdrawn) The method of claim 26, wherein said sample is comprised of a physiological fluid.

28. (withdrawn) The method of claim 27, wherein said physiological fluid is selected from the group consisting of blood, interstitial fluid, lavage, perspiration, plasma, saliva, serum, and urine.

Claims 29-30 (canceled)

31. (previously presented) The biosensor according to claim 2, wherein at least one reporter group is acrylodan.

32. (currently amended) A biosensor for glucose, which comprises a glucose binding protein (GBP) and acrylodan covalently attached at position 183 of said GBP, wherein binding of glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group ~~The biosensor according to claim 7, wherein at least one reporter group is acrylodan~~.

33. (new) A method of detecting presence or absence of glucose in a sample, which comprises: contacting a biosensor according to claim 32 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said biosensor is contacted with said sample with the signal(s) transduced by said reporter group when said biosensor is contacted with at least one control sample containing a known quantity of glucose; and determining the presence or absence of glucose in said sample from said comparison.

34. (new) A method of quantitating amount or concentration of glucose in a sample, which comprises: contacting a biosensor according to claim 32 with said sample under conditions such that said biosensor is able to bind to glucose present in said sample; comparing the signal transduced by said reporter group when said biosensor is contacted with said sample against signals transduced by a series of control samples containing known quantities of glucose; and calculating the quantity of glucose in said sample from said comparison.

35. (new) A method of assaying for glucose in a sample, which comprises:

(a) contacting a biosensor according to claim 32 with said sample, wherein binding of said glucose in a glucose-binding pocket of said biosensor causes a change in signaling by said reporter group;

(b) measuring a ratiometric change (ΔR) for the signal transduced by said reporter group; and

(c) at least detecting or quantitating glucose present in said sample.

36. (new) The method of claim 35, wherein said sample is comprised of a physiological fluid.

37. (new) The method of claim 36, wherein said physiological fluid is selected from the group consisting of blood, interstitial fluid, lavage, perspiration, plasma, saliva, serum, and urine.